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STATEMENT OF OBJECTIVES (SOO)
GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE SERIES R (GOES-R)

December 13, 2004

1.0 Introduction

The GOES-R Program is managed by the National Oceanic and Atmospheric Administration (NOAA), NOAA's Satellites and Information Service (NESDIS), Geostationary Operational Environmental Satellite R (GOES-R) Program Office (GPO). This document provides the GOES-R system, program, and Program Definition and Risk Reduction (PDRR) Phase objectives.

2.0 Background

The primary mission of NOAA is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs. The goal of the GOES-R program is to procure an end-to-end system that will provide an uninterrupted flow of environmental data required by its users. Improvements planned for the GOES-R series of satellites are required to support NOAA's strategic plan's mission goals to protect, restore, and manage the use of coastal and ocean resources through ecosystem management approaches; to understand climate variability and change to enhance society's ability to plan and respond; to serve society's needs for weather and water information; to support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc); and provide critical support to NOAA's mission.

This environmental data is acquired, processed, and distributed on varying geographic scales (hemispheric, regional and local) within a variety of time periods (minutes to days). GOES data includes hemispheric, CONUS, and mesoscale imagery and soundings; cloud and precipitation parameters; atmospheric profiles of temperature, moisture, wind, aerosols and ozone; surface conditions concerning ice, snow and vegetation; ocean parameters of sea temperature, color and state; solar conditions and in-situ space environments.

3.0 System Objectives

The GOES-R system shall meet the requirements of the GOES Program Requirements Document (GPRD) and the Mission Requirements Document (MRD). The GOES-R Concept of Operations (CONOPS) is intended to provide an operational context for the GOES-R system. The CONOPS is an evolving document and will be tailored as the system design matures.

4.0 Program Objectives

The program shall be executed to achieve the following program objectives:

4.1 Study, design, develop, demonstrate, document, test, produce, deploy, maintain, and support a GOES-R system that achieves the System Objectives referenced above to provide quality, timely, and useful data to the GOES user community.

4.2 Implement and operate within disciplined, comprehensive and near real-time program management processes and systems. These processes and system should utilize proactive metrics and reporting against the Government-approved cost, schedule, performance, and risk baseline. This management approach should support flexible and innovative management of program cost, schedule, performance, risks, contracts and subcontracts, and data to deliver an effective and affordable system.

4.3. Implement a seamless contractor program structure with clearly defined roles and responsibilities that supports the shared Government/Contractor responsibility for program success. This structure should include, but not be limited to:

4.3.1 Prime contractor-led Integrated Product Teams (IPTs) with the GOES-R program staff, instrument contractors, other GOES-R suppliers, NASA and other Government agencies, associated contractors, subcontractors, and other parties as needed;

4.3.2 Participation in Government-led working groups.

4.4 Implement acquisition and operations processes to optimize cost, performance and risk; while rewarding the achievement of a best value solution to the Government's mission requirements.

4.5 Establish a proactive partnership with the Government allowing analyses and alternate solutions to satisfy cost and performance requirements, breaking down common barriers to Government and industry communications and organizational interfaces. This partnership should apply innovative business approaches compatible with the contractor's and Government's programmatic constraints.

4.6 Perform disciplined systems engineering necessary to achieve the System Objectives.

4.7 Employ robust system engineering and analytical processes for conducting trade studies to design a system that optimizes performance and affordability.

4.8 Demonstrate appropriate levels of technical and design maturity at points such as the System Requirements Review (SRR), System Concept Review (SCR), Interim Preliminary Design Review (IPDR), Preliminary Design Review (PDR), and Critical Design Review (CDR) milestones.

4.9 Employ comprehensive risk management to identify, assess, handle, and monitor significant technology, performance, cost, schedule, integration, producibility, and other risks. Participate in and leverage industry, academia and Government-sponsored risk mitigation activities, as appropriate.

4.10 Define configuration management functions and processes to identify, control and account for configured items.

4.11 Define, document, coordinate, manage, and verify all interface/integration requirements internal and external to the GOES-R system.

4.12 Identify, plan for, manage and implement the graceful and cost-effective insertion of initial and incremental emerging technologies that provide added utility throughout the system life cycle.

4.13 Plan and implement a robust and disciplined component, sub-system, and system-level test and evaluation program to verify the delivered system will meet program requirements.

4.14 Develop, document, and implement effective software development plans and capabilities necessary to achieve program objectives.

4.15 Develop, document, and implement effective hardware development and production plans and processes necessary to achieve program objectives.

4.16 Develop, document and implement a mechanical and electronic Ground Support Equipment (GSE) plan.

4.17 Establish an Environmental, System Safety, and Health program in compliance with applicable rules and regulations.

4.18 Support the development and implementation of a system protection and information assurance program to protect critical program information and critical system resources.

4.19 Ensure development and evolution of a supportable system design and implement an affordable, comprehensive integrated logistics and training support capability necessary to support program objectives.

4.20 Comply with all federal, state and local laws and regulations (and international laws and regulations, where appropriate).

5.0 Program Definition and Risk Reduction (PDRR) Phase Objectives

The following PDRR objectives shall be accomplished within a framework that meets the System and Program Objectives listed above:

5.1 Develop one or more System Architectures that optimally satisfy the GPRD and MRD as well as provide a best value solution for entry into the Acquisition and Operations (A&O) phase.

5.2 Perform trade studies that support the definition of a GOES-R architecture that balances performance, affordability, risk, and schedule. Trades should include, but not be limited to:

- 5.2.1 Affordability (cost driver trades)
- 5.2.2 Orbit box size
- 5.2.3 Ground segment primary and remote locations and CONOPS
- 5.2.4 Frequency utilization
- 5.2.5 Data distribution (GFUL and GRB)
- 5.2.6 Launch services (GFE vs Commercial)
- 5.2.7 Infrastructure architecture and interfaces
- 5.2.8 Instrument management transition options
- 5.2.9 Operations and support approach

5.3 Define a Software Architecture for all space, ground, and user interface software configuration items.

5.4 Develop a Software Development Plan. This plan should address methods for utilizing Contractor/Government furnished algorithms and expertise to support product processing development.

5.5 Plan for effective transition of instrument activities currently being managed by government contracts to prime contractor management.

5.6 Perform system performance and affordability trade studies, requirements analysis, interface definition, program planning, and all other activities necessary for completion of a successful SRR, SCR and IPDR for a system that optimally satisfies System and Program Objectives.

5.6.1 Interface definitions include, but are not limited to, Spacecraft to Instruments; Space/Launch Segment to Ground Segment; Ground Segment to NESDIS Infrastructure; and Ground Segment to Users.

5.7 Initiate development of a modeling and simulation capability to support trade studies, incremental refinement of the CONOPS, MRD, and GPRD, and support of end-to-end performance analysis, product validation, interoperability testing, and personnel training.

5.8 Develop and evolve life cycle cost (LCC) estimates and a basis of estimate for the GOES-R system to support PDRR Phase affordability trades, A&O cost estimates, and a Government Independent Cost Assessment.

5.9 Develop a technology roadmap for insertion of emerging technologies and standards into a technical baseline including plans for the acquisition, integration and test of P^3I instruments.

5.10 Support the GPO preparation for KDP-C/D by providing information, documentation, and support necessary for KDP-C/D approval.

5.11 Identify risks in critical areas, develop risk mitigation plans, and demonstrate how risk will be mitigated to a level that delivers mission performance and permits or extends capability for GOES-R system and segment threshold performance within LCC and schedule constraints.

5.12 Develop an integrated logistics support approach that integrates logistics analyses into the system design.

5.13 Develop a test and evaluation approach encompassing both developmental and operational tests.

5.14 Assist the Government as it finalizes the GPRD, MRD, CONOPS, and other documents in preparation for the A&O phase.

5.16 Assist the Government in identifying Government property or resources that a contractor will need in the A&O phase.

5.17 Assist the Government in the identification, definition and development of all plans, processes and activities necessary for entry into the A&O phase.